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Study of Pathogenic Protozoan in Surface Water in (Mandan Sagar) and Effects of Human Body

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ABSTRACT

Safe-Drinking water is suitable for all usual domestic purposes including personal hygiene. The Parasites enter the body through food or water that has contaminated by feces of infected people or animals.Drinking Water is the basic need for the human life it quality should as the Prescribed Indian Standards and W.H.O…..

The objective of this paper was to review the current state of Water-related health Problems Caused by Pathogenic Protozoa."There are various institutions of control and preventionof water related diseases caused by Protozoa in Developed Countries.The Water supply is mainly depends of mahoba city in Madan sagar. The water supply from Madan sagar by water worth of the Mahoba city Approximatly 70% of the total Population.Since 1970 water pollution has became a serious problem which is rapidly increasing as this pollution bring about undesirable changes in micro-organisms characteristic Pathogenic Protozoans (acanthamoeba, Balantidium Coli, Cryptosporidium, Entamoeba Histolytica Giardia Intestinalis, Isopora Belli, microsporidia, Naegleria Fowleri) of water and harmful effect on human life. The health crititically depends upon the availability and quality of drinking water under the present study is surface water is mahoba city which were studies Consistently for two consecutine years -(Oct 2015 - Sep 2016) Oct (2016 - Sep-2017) as regard the Pathogenic Protozoans analysis.

INTRODUCTION

Water is essential to sustain life and a satisfactory adequate safe and accessible supply must be available to all improving access to safe drinking water can result in Tangible benefits to health every effort should be made to achieve a drinking water quality as safe as practicable.

The Parasites enter the body through food on water that has been contaminated by feces of infected people or animals. The Protozoa attach to the lining of the host small intestine. where they prevent to the host from fully absorbing nutrients'. They may also cause diarrhea, abdominal pain and fever.

The main cause of water borne and water washed diseases is fecal material in the water supply and lack of hygiene.Feces can enter the water in various ways such as waste-water overflow, non functioning sewage systems contaminated storm drains and agricultural effluent. The Water supply is mainly depends of mahoba city in Madan sagar. It is in the north side of Mahoba city, it was built by Chandel King Mandan Verman during AD 1129-1163. The temple of Alha-Udal is centrally & located from where the peripheral distance of 100 menter.Eastern side of the sagar. The maximum water level of the Sagar is 207.55 meter or 32 million cubic meter and maxium water level 210.13 meter.The water supply problems in Mahoba city as regards the resources of water for drinking water supply which is mainly dependable on madan sagar as this sagar is localized inside the city which is surrounded by thick population various types of pollution in it.

Disinfection of drinking water is one of the major public health advances of the 21 century and has been a critical factor in reducing the incidence of water borne diseases including typhoid, cholera and gastro-intestinal illness in the U.S. by products of disinfection have also been associated with potential cancer, although the extent of risk posed is still uncertain limiting concertrations of disinfection by products in drinking water while ensuring that microbes are kept in check will have a positive effet on public health.

METHODOLOGY

These all were analyzed as per the world approved standard methods given in 1980 by American Public health association (APHA), American water works association (AWWA) and water control federation (WPCP). The qualitative and quantitative studies were made and for their identification the literature was consulted by Goyal and Trivedi. The Water Samples were collected in routine manner from the surface water in (madan sagar). The water samples of surface water were collected monthly and collected in sterilized and phosphate free bottle from the sampling station (madan sagar) the standard methods of collection as per APHA method.

RESULT AND DISCUSSION

Monthly Variation of Pathogenic Protozoans of Mandan Sagar :-

(Table - 1)
First Year (Oct 2015- Sep 2016) Monthly Variation of (Pathogenic) Protozoans in Mandan Sagar

	Protozoa	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sep
1	Acanthoeba	6	7	4	7	10	13	16	18	22	0	0	0
2	Balantidium Coli	2	3	2	1	2	4	5	7	9	0	0	1
3	Cryptosporidium	1	2	1	4	5	7	10	14	16	1	0	0
4	Enatamoeba histolytica	7	9	8	10	12	14	17	20	22	24	0	1
5	Giardia Intestinalis	2	1	2	3	5	6	8	10	12	0	0	1
6	Taxoplasmagondie	1	1	4	5	8	8	9	14	15	2	0	0
7	Naegleria Fowleri	0	2	2	1	3	3	6	9	10	5	0	1

(Table - 2)
Second Year (Oct 2016- Sep 2017) Monthly Variation of (Pathogenic) Protozoans in Mandan Sagar

	Protozoa	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sep
1	Acanthoeba	6	8	5	8	11	14	17	19	24	1	0	0
2	Balantidium Coli	2	4	3	1	3	5	7	7	11	0	0	1
3	Cryptosporidium	3	2	1	6	7	9	11	16	18	2	1	0
4	Entamoeba histolytica	8	8	9	11	14	16	19	22	24	25	0	1
5	Giardia Intestinalis	2	2	4	4	6	8	9	11	14	0	0	2
6	Taxoplasmagondie	1	2	5	6	9	9	10	14	17	1	0	0
7	Naegleria Fowleri	1	3	3	4	5	6	6	11	13	6	0	2

Acanthamoeba - This is free living and it from 10-50 µm in diameter common in aquatic environments and it is on of the prominent Protozoa in soil. The genus contain's nearly 20 species of which Acanthamoeba castellii, Acanthamoeba Polyphage and Acanthamoeba Culbersoni are know to be common human pathogens.

The Study of Acanthamoeba were observed form 4 to 22 orgl in the first year and 5 to 24 orglsin second year**.** The maximum density of Acanthamoeba was found in the month of June.In the effect of human body reduction of health and intense headaches, stiff neck, nausea vomiting, sporadic. low fevers focal neurological changes. Acanthamoeba was found in surface water.

Balantidium Coli - Balantidium Coli belongs to the largest protozoan group the ciliates with about 7200 species of which only B. Coli in know to infacts human.

In the study of B. Coli were observed form 1 to 9 org/l in first year and 1 to 11 org/l -in second year maximum density was found in the month of June and minimum month of December. Transmission of B. Coli in human body is by the faecal/oral route from person to person and contaminated water and food.

Cryptosporidium - In the study Cryptosporidium were noticed form 1 to 16 org/l in first year and form 1 to 18 org/l in second year.High density of cryptosporidium was recorded in the month of june as like that of above stated along with faecal pollution.

Entamoeba Histolytica - Entamoeba is the intestinal pathogen Protozoan worldwide.

It was observed which ranged from 01 to 24 org/l in first year and from 01 to 25 org/l in second year. The high density was observed in the month of july due to high docomposition of faecal matter, sewage high temperature.

Giardia Intestinalis - It is flagellates Protozoa that Parasitize the gastrointestinal tract of humans. Giardia can multiply in a wide range of animal species, including humans which excrete cysts in the environment. A number of Cysts as high as 88000 per liter in raw sewage and 240 per liter in surface water resource have been reported. They may also cause diarrhea, abdominal pain and fever.It the study Giardia was observed from 01 to 12 org/l in first year and from 02 to 14 org/l in second year. The high quantity in the month of june.

Taxoplasmagondii - It is occur in water sources and supplies contaminated with the faeces of infected one. Toxoplasmasis is usually asymptomatic in humans in a small percentage of cases flu like symptoms. Gmphadenopathy and hepatosplenomegaly appear 5-23 days after the ingestion of Cysts. Toxoplasma-gondii was quantitativelyobserved from 01 to 15 org/l in first year and from 1 to 17 orgl/l in the second year. Maximum density was recorded in the month of june due to perculation of sewage and rain fall.

Naegleria Fowleri- Naegleria fowleri occurs Naturally infresh water of suitable tempreture and prevalence is only indirectly related to human activity.It causes primary amoebic meningo encephalitis (PAM) also is healthy indivicals. In the present study Nageria Fowleri was observed from in first year and it was found from 1 to 13 org/l in second year. Maximum density was recorded in month of june.

The potable water and its availability are worldwide problem. In this regard India has started water mission since 2005-2015 year. A number of researches and others faculties are engaged in this field.

CONCLUSION

In the present study pathogenic protozoan in water. The diseases have a major Public health and socio economic impact. water plays and important role in the transmission of some of these Pathogens. The control of water borne transmission Presents real challenges because most of the Pathogens Produce cysts oocysts or eggs that are extremely resistant to processes generally used for the disinfection of water and in some cases can be difficult to remove by general fillration Processes.

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